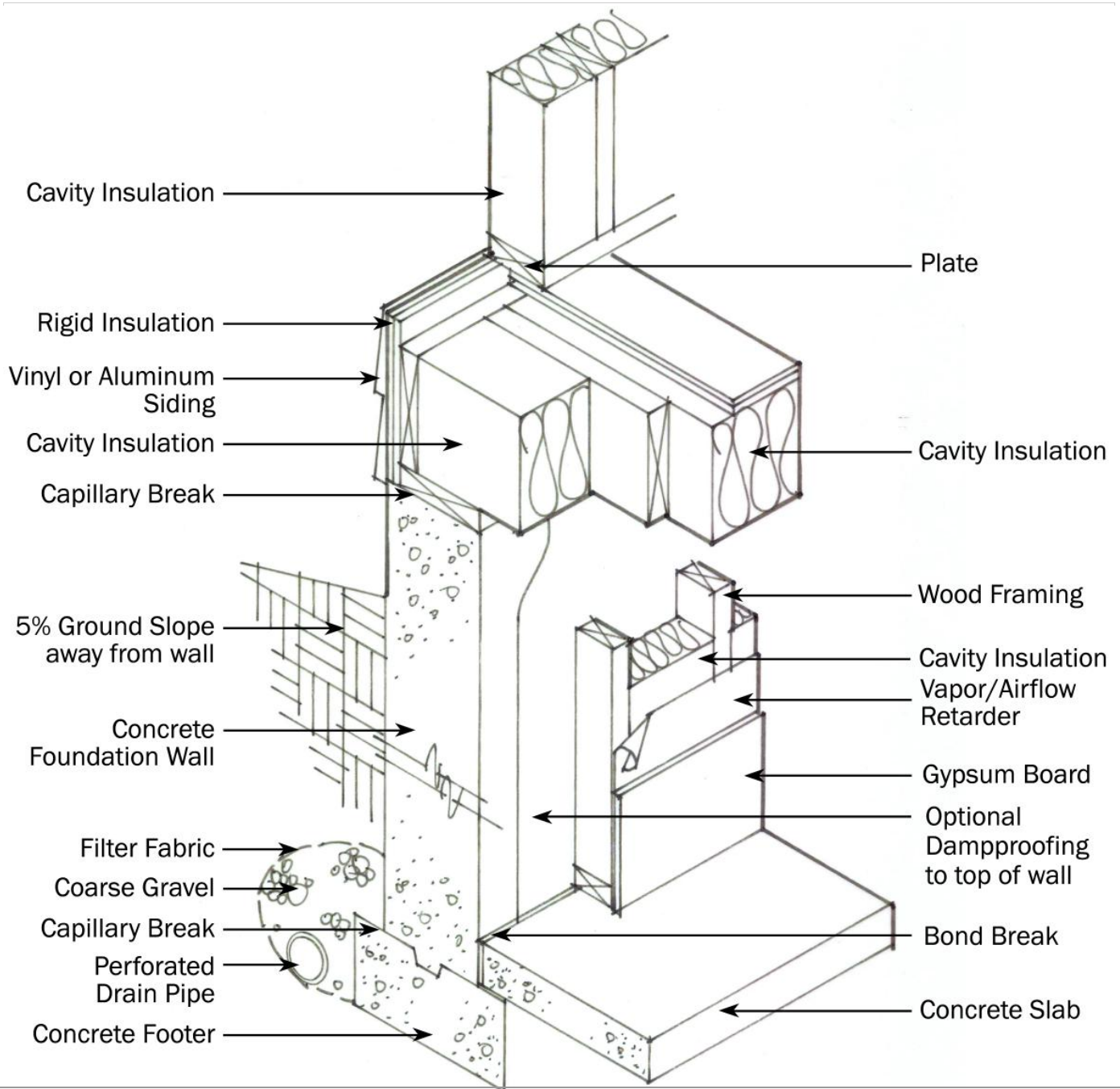


## AEDG Implementation Recommendations: Moisture and Air Infiltration

The Advanced Energy Design Guide (AEDG) seeks to achieve 30 percent savings over Standard 90.1-1999. This guide focuses on improvements to small office buildings, less than 20,000 square feet. The recommendations below are adapted from the implementation section of the guide, and should be used in cooperation with the whole document.\* The full design guide is available from the ASHRAE website, [Advanced Energy Design Guide for Small Office Buildings](http://www.ashrae.org/Advanced_Energy_Design_Guide_for_Small_Office_Buildings).

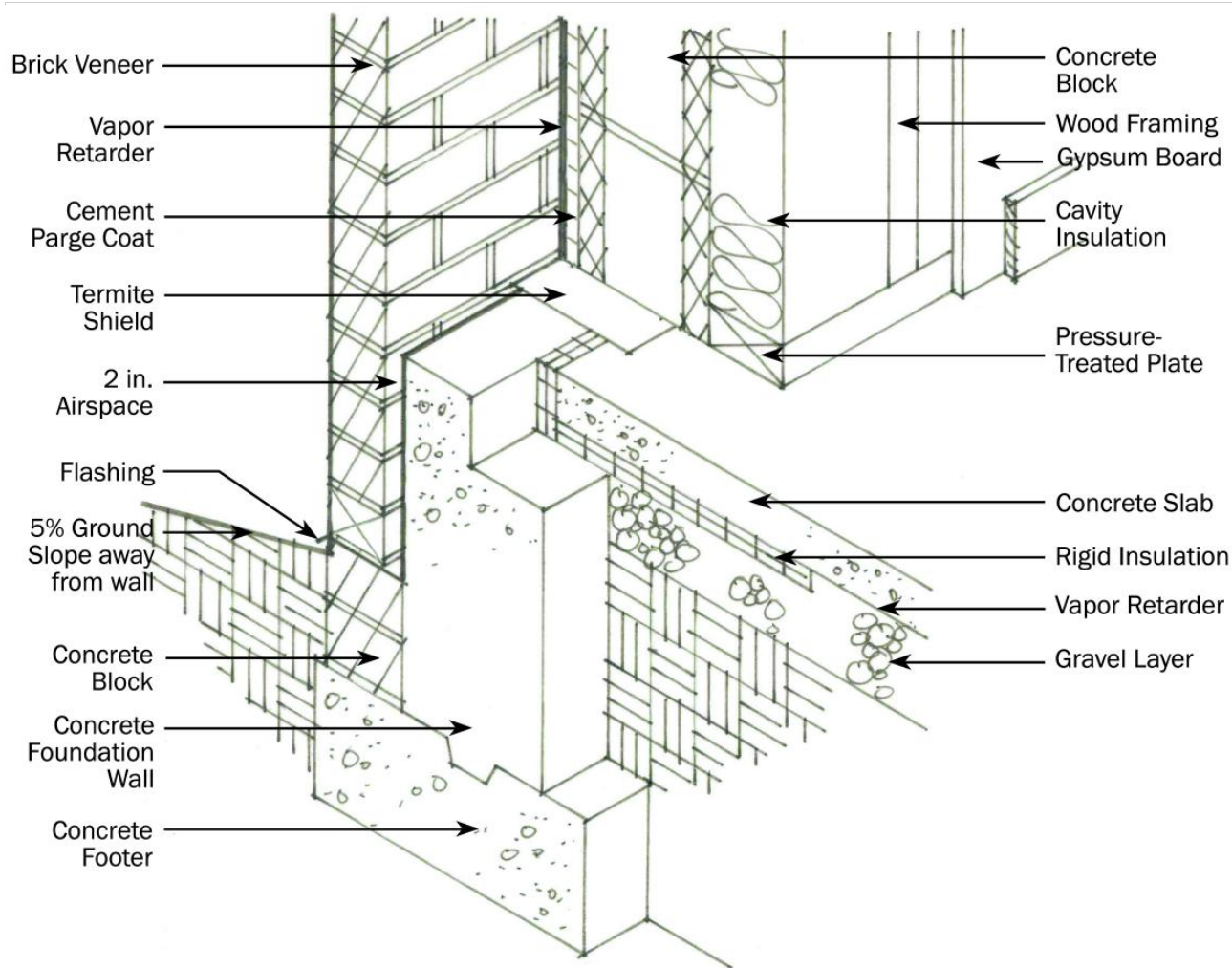




The design of building envelopes for durability, indoor environmental quality and energy conservation should not create conditions of accelerated deterioration, reduced thermal performance, or problems associated with moisture and air infiltration.

## Moisture Control

Building envelope assemblies should be designed to prevent wetting, high moisture content, liquid water intrusion, and condensation caused by diffusion of water vapor.



## Air Infiltration Control

The building envelope should be designed and constructed with a continuous air barrier system to control air leakage into or out of the conditioned space. An air barrier system should also be provided for interior separations between conditioned space and space designed to maintain temperature or humidity levels that differ from those in the conditioned space by more than 50% of the difference between the conditioned space and design ambient conditions.

The air barrier system should have the following characteristics:

- It should be continuous, with all joints made airtight.



- Materials used should have an air permeability not to exceed 0.004 cfm/ft<sup>2</sup> under a pressure differential of 0.3 in. water (1.57 psf) (0.02 L/s\*m<sup>2</sup> at 75 Pa) when tested in accordance with ASTM E 2178.
- The system is capable of withstanding positive and negative combined design wind, fan, and stack pressures on the envelope without damage or displacement and should transfer the load to the structure. It should not displace adjacent materials under full load.
- It is durable or maintainable.
- The air barrier material of an envelope assembly should be joined in an airtight and flexible manner to the air barrier material of adjacent assemblies, allowing for the relative movement of these assemblies and components due to thermal and moisture variations, creep, and structural deflection.

Connections should be made between:

1. Foundation and walls.
2. Walls and windows or doors.
3. Different wall systems.
4. Wall and roof.
5. Wall and roof over unconditioned space.
6. Walls, floor, and roof across construction, control, and expansion joints.
7. Walls, floors, and roof to utility, pipe, and duct penetrations.

All penetrations of the air barrier system and paths of air infiltration/exfiltration should be made airtight.

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